STS-1 LAUNCH - RARE NASA-TV COVERAGE (4-12-1981)

https://www.youtube.com/watch?v=GjeT1MgOlrM (https://www.youtube.com/watch?v=GjeT1MgOlrM)

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From Sunday, April 12th, 1981 RARE NASA TV Coverage of the countdown and launch of STS-1, America's first Space Shuttle mission.

- Coverage runs from approximately T-1:38:50 (5:21:13 A.M E.T) to T+ 30:00 (7:30:03 A.M E.T)
- Countdown commentary provided by : NASA P.A.O - HUGH HARRIS (Kennedy Space Center)
- Ascent commentary provided by: NASA P.A.O - JOHN MCLEISH (Johnson Space Center)

- This was a 54 hour 21 minute flight which was launched from pad-39-A at 7:00:03 A.M E.T at the Kennedy Space Center in Florida. It landed at Edwards Air-Force base in California.
- To skip to the final minute of the countdown skip to @1:37:50

The STS-1 CREW:

Commander: John Young
Pilot: Robert Crippen

00:00:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM)

safety holders this is shuttle launch control at t minus one hour 11 minutes 20 seconds and counting at the present time the closeout crew is removing the final stage of the little ramp that goes into the crew compartment the asp or the astronaut support pilot has gotten out lauren shriver who was helping with the preparing of the cabin first for the astronauts and then placing them in their seats and getting them hooked up properly it was lauren shriver who was helping work that problem uh which we had with the quick disconnect and the breathing air for astronauts john young and bob crippen at the the present time they are preparing uh for closing of the door they're wiping down the seals in the area where the walkway went across and around the door of course it's very important to have exactly the the proper seal there because of the pressurization of the cabin throughout the flight they have already removed a portion of the air hose which is used to blow air into the cabin to ensure that there is some circulation of air there and that for the the people to breathe when they're going in there they're standing by now to move the door into the shut position uh astronaut lauren schreiber in a blue suit the rest of the technicians in white suits with rockwell international on the back the prime contractor for the preparations here at the the kennedy space center they're moving away taking down the air hose that blows air into the cabin has a little ring around it that holds its in place on the blower and now preparing to move the door into the closed position what is necessary as soon as the door is closed is to uh remove lock the door into position

00:02:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=120s)

uh remove lock the door into position there's a number of locks on it uh then they remove the handle which is used during the time that it's on the ground and they replace all of the the various uh holes that are there for the the locking process with screw-in plugs of thermal protection system this is used for protecting that area of the door from the heat during the re-entry process at the present time things are moving along very smoothly as we complete the closeout of the crew compartment the closing of the hatch and the preparation for the closeout crew to prepare the access arm to be retracted other things in the countdown going along very well are contingency landing sites or a primary landing site backup landing sites are prepared and satisfactory for the flight this morning at the present time the countdown is a t-minus one hour eight minutes 45 seconds and counting this is shuttle launch control

[00:04:09 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=249s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=249s)

transducers check all right have we done the fuel leaks at this evil okay we'll get those out of the way i verify that vote up or down arrows

[00:06:18 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=378s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=378s)

joy i will go ahead and automatically make the appropriate corrections during the 20 minute hall to account for this 51 seconds all right you should have 233 clear uh how to drink the uh bsrs at minus 45 minutes i'd like to pick that up by the clock at t minus 50 minutes all right we can do that what step is that dps very good

[00:08:21 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=501s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=501s)

minus one hour three minutes twenty seconds and counting we have just had verification from the closeout crew that they have checked the integrity of the seal in the hatch door going into the orbiter and they are ready to begin the cabin pressurization check they will pressurize the cabin and then let it sit at that pressure for a while to ensure that there is no leakage uh whatsoever uh and that the pressure stays exactly the same uh then process of one of the ways in which they check the seal to ensure that they have a good seal is that they measure the the pressure on the the seal through the outside of that door the present time they're working on the cabin pressurization sequence and then they will be closing out the white room bringing back the the various sides of it that press against the orbiter and provide a seal there to keep that area a very very clean one we have had the old fire checks from the rain safety office over on the cape canaveral air force station this is an essential part of the rain safety system and allows the rain safety officer to shut down the uh the main engines to stop the the countdown prior to a liftoff at any time should there be some reason why it was necessary to do that those uh checks were satisfactory as we proceed down the line now at t minus one hour one minute 45 seconds and counting this is shuttle launch control

[00:10:30 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=630s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=630s)

so and all personnel were coming up on t-minus one hour in about 30 seconds uh stay by the clock we're at one hour and it's 5 30 in the morning

[00:12:29 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=749s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=749s)

can i go ahead and reset it yeah okay so standby 30 seconds

[00:14:14 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=854s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=854s)

uh this is shuttle launch control at t minus 57 minutes 24 seconds and counting at the present time the uh nasa test conductor has called for performance of the calibration of the asip which is the aerodynamic instrument package which is on board the shuttle and which will be measuring all of the various aerodynamic parameters of the flight as it goes through the uh the various uh mach numbers up to orbit and then once again when it comes down through the atmosphere for a landing at the edwards air force base in california this is a tremendous opportunity for the flight engineers at nasa and elsewhere in the world to get some readings of an aircraft type spacecraft which will be doing things that have never before been done and therefore have never been able to be measured in real time as they actually happen the the orbiter accelerates from sitting on the ground uh up to more than 17 000 miles per hour in order to go into orbit and then of course it comes back from that speed down through the atmosphere uh going through hypersonic speed regimes and then down to a landing at about 200 miles per hour this is the first time that a winged vehicle has been sent through this entire spectrum of flight at the present time everything going very smoothly here in the countdown as we move toward the next hold which comes at the t minus twenty minute point in the count it will be a twenty minute built in hold we'll have one other built in hold after

00:16:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=960s)

we'll have one other built in hold after that which comes at the t minus nine minute point and is in a ten minute built-in hold during this uh twenty 20-minute build-in hold we will have a slight adjustment to our countdown clock in order to bring us out with a t-zero exactly at 7 00 a.m eastern standard time this evening everything going along very smoothly t t-minus 55 minutes 20 seconds and counting this is shuttle launch control uh yeah we were going to pick that up at -50 okay so

00:18:24 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1104s)

it really needs to be fixed 30 seconds cmps this is shuttle launch control at t minus 52 minutes 30 seconds and counting launch director george page is talking to weather he's been looking out the window and says it sure looks nice out there and he has had a affirmation from the weatherman that we're going to have good weather for launch at 7 a.m this morning elsewhere in the countdown we're coming up on the t minus 51 minute point this is the point at which we will begin the inertial measurement unit pre-alignment uh for flight or pre-flight alignment uh the inertial measurement units are an important part of the guidance system which is used for telling the orbiter and the ground where it is at all times during the flight

00:20:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1200s)

we had only one problem in the countdown so far of this morning as we look toward our launch that was after the crew had gotten into the cabin uh when we tried to hook up the air hoses to their helmets it was discovered that they were not getting air properly at their helmets it turned out that the problem was in what is called a quick disconnect it's a connection that's located underneath the seat which is used for connecting the hose that moves to the helmet the quick disconnect was not quite in the proper position and a locking pin was not in place they found that they moved it to the proper uh uh seating uh of place in the the quick disconnect the the pin popped out to the right position and the air began to flow to both the pilot to bob crippen and commander john young as it is everything going along very smoothly now we don't know of any major problems and are proceeding towards a liftoff at seven a.m this morning we have passed the point now where we'll be beginning the imu pre-flight alignment this is a 51-minute task and is started at the 51 minute point in the countdown and then completed during the built-in 20-minute hold that comes at the 20-minute point in the countdown for everything going very smoothly at this point the countdown stands at t minus 50 minutes 11 seconds and counting this is shuttle launch control okay

00:22:10 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1330s)

ptlsftc are you ready to pick up a main line activate uh i prefer to do it for the clock yes that's been accomplished verified thank you ccsd 464 calls

00:24:02 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1442s)

roger so first now we're doing gls mainline activation for season 45.

00:26:12 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1572s)

yeah okay we're done with the texturization part of our uh sequence you can uh notified there to continue slide closeout for all the operations reports that are pointing and you can notify that the fss breathing air system is no longer required we'll take 10 minutes to look at our system you can pick up the clothes out of the hatch for sequence 20 with it yeah stand by 30 seconds

[00:28:21 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1701s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1701s)

this is shuttle launch control at t minus 43 minutes 20 seconds and counting at the present time the cabin leak check isn't work and apparently proceeding along satisfactorily that is not completed until approximately the t minus 30 minute point in the countdown the closeout crew is finishing up the work which they need to do at the level of the hatch that gives access to the astronauts and then the they will prepare the swing arm to be moved back at the t-minus seven minute point in the countdown the only other arm which has to be moved prior to liftoff is what's called the gox vent arm or beanie cap this is used for gaseous nitrogen which is sprayed on the of the very top of the external tank to try and prevent any buildup of ice at that point where the liquid hydrogen vents uh liquid oxygen vents from the external tank both of those tanks have been at their flight mass for some time now and in the replenish mode where we add just enough to the tanks to keep them at the proper level as some of them uh of the liquids boil away it's just natural that they should boil away because of the very very cold temperatures of them liquid hydrogen for instance boils at minus 423 degrees below zero fahrenheit at the present time they close out crew up in the is making sure that the thermal protection system uh is in the proper configuration there

[00:30:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1800s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1800s)

uh is in the proper configuration there they have to actually screw some plugs into it uh which are threaded into the the tps which is on that hatchway and was put on here in the orbiter processing facility uh just several months ago present time everything moving along very smoothly in our countdown the booster test conductor has asked to calibrate the solid rocket motor pressure transducers these are the instruments which are necessary to provide the information which separates the solid boosters during the flight once they have burned out so it's essential that those pressure transducers be working properly to prevent any premature separation the pre-flight alignment of the inertial measurement unit is underway and that will be completed at the end of the 20-minute built-in hold which comes up at the t-minus 20-minute point the rain safety officer has reported that the eastern test range command test is complete and bob crippen is about to begin the auxiliary power unit water boiler pre-activation at the present time everything going along very smoothly in our countdown the count presently stands at t minus 40 minutes 23 seconds and counting this is shuttle launch control steph uh 494 complete i was just calling to verify that okay our pre-sequencing starting i'll verify 493 also rogers 493.

[00:32:41 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1961s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=1961s)

up this one otcl very good yes we are we can give you step um 14 497 and stand by to do an event at 30 minutes it says that you can pick it up

[00:34:15 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=2055s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=2055s)

we're going to monitor um you ready for the 524 ready go okay cdr open again okay

[00:36:09 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=2169s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=2169s)

stand by 30 seconds this is shuttle launch control at t minus 35 minutes and counting at the present time the closeout crew is finishing up the various preparations necessary on the orbiter access arm they have just swung away the portion of that arm which provides the seal between the very clean room atmosphere of the white room and the orbiter it has a sort of an inflatable seal that presses against the orbiter just slightly to ensure that we not get any uh undue amount of dirt or contamination from wind blowing things up there uh in the white room we try to maintain the integrity of that because that is the area that people pass through into the vehicle at the present time everything going very smoothly we're waiting for verification that the cabin vent was satisfactory the pressurization was satisfactory then commander john young was asked to prevent the cabin vent at this time he opens the vents and allows the pressure to leak out at a predetermined rate we're waiting for confirmation that the landing sites are prepared and ready for the launch and expect that they are the s-band

00:38:02 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=2282s)

and expect that they are the s-band telemetry system uh has been switched to high power and the myla tracking site that's the tracking site on merritt island is adjusting their uplink command signals to the proper level the ground launch sequencer mainline computer programs are in the process of being activated at the present time everything going smoothly we're looking for a launch on time at seven a.m this morning the countdown stands at t minus 33 minutes 10 seconds and counting this is shuttle launch control uh okay otc dps go ahead at this time we can verify 14 542 on page 369.52

00:40:03 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=2403s)

columbia houston uh we're ready for the simo launch configuration voice checks houston i read you loud and clear and uh houston this is the plt with a shortcut coming at you one houston the cyber check sounds good and i going through the updates there are no adi cue card updates there are no rtls wind updates the altimeter three zero two one and with a wind of one two zero at three on the surface so we're looking at runway one five unless updated by joe okay and we got the uh temperature roger sounds good we're done practicing we'll see you in the air okay stand by 30 seconds uh this is shuttle launch control at t minus 30 minutes and counting we have just had a voice check between commander john young and houston mission control and between pilot bob crippen and also houston mission control everything working satisfactorily they gave them an indication that they would be using run runway one five if necessary for return to launch

00:42:01 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=2521s)

five if necessary for return to launch site abort they have pressurized the orbiter maneuvering system with gaseous nitrogen and that has been done satisfactorily we have also heard from the landing sites at edwards california and at northrop strip white sands new mexico that they are ready to support the launch the weather continues to look good for the launch as the the sun begins to come up a launch which should occur just approximately one hour from now we have had confirmation that we will have the built-in hold on time at the t-minus 20 minute point this is a planned built-in hold and has 20 minutes in duration it at that time we will adjust the countdown clock by approximately 51 seconds to ensure that we come out exactly on 7 am this morning for the launch the present time everything going very smoothly the countdown at t minus 28 minutes 40 seconds and counting this is shuttle launch control 5 43 has been verified thank you quality underground voice checks uh 5 38 uh 5 41 are done five o'clock okay tell him get back i did don't we see him again in california standby 30 seconds

00:46:05 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=2765s)

this is shuttle launch control at t minus 25 minutes 33 seconds and counting at the present time the closeout crew has gotten into the elevators coming down to the pad surface just before they left the area launch director george page said thanks for a job well done they had the only real problem which has come up during the countdown to solve so far and that was the problem with the breathing air feed to the crew it was discovered that the problem was caused by a quick disconnect on one of the hoses which was not quite in the proper position at the the time the crew was placed in their seats that just had to be rotated slightly and a pin which is in that which indicates that it's working properly popped out to the right position and everything has been able to proceed the elevators will be pressurized at the pad surface with the doors closed and the power switch is off and the nasa test conductor is asked to be notified when all personnel have cleared the impact limit line roadblock the present time everything going along smoothly uh we're about four hours and 24 minutes and 22 seconds away from the 20-minute build-in hold that's the second last one we have one other built-in hold at the t-minus nine minute point in the countdown at the present time we have heard from all of our various landing places and from the weather forecaster at the cape canaveral air force station that everything is satisfactory for a liftoff at 7 00 am this morning they count at t minus 23 minutes 50 seconds and counting this is shuttle launch control

00:48:18 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=2898s)

so you ready now okay uh 30 seconds so this is shuttle launch control at t minus 21 minutes 42 seconds and counting we're presently preparing to enter the plan planned 20-minute hold at the t-minus 20-minute

00:50:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3000s)

20-minute hold at the t-minus 20-minute point in the countdown the astronaut john young has just been asked to close the cabin vents and they will repressurize the cabin at that time the primary computer data is being transferred to the backup computer in order for both of them to have the same date in case of a primary computer system failure the backup computer will take over command of the shuttle during the launch period during this 20-minute uh hold period there are a number of things which uh must be done one of them will be to re-set the clock the countdown clock and so you will see a movement of that of approximately 51 seconds in order to bring us out at a liftoff at exactly 7 a.m this morning we're coming up on that particular hold at this time about 39 seconds away from it the weather aircraft uh will be active at this time we have a number of aircraft which will be in the air they include weather aircraft and also chase planes the the chase planes will not take off until later at the t-minus nine minute hold period with the final playing being launched at t minus five minutes with a very very tight uh constraint there coming up on the hold t-minus 20 minutes and holding we've had the announcement here in the control center uh that we're at t minus 20 minutes and holding and uh we'll have a number of things happen verification that the shuttle landing facility convoy preparations are

00:52:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3120s)

preparations are ready and we also will have another weather briefing to ensure that everything is go but as it is now we know of no problems which would prevent a lift off on time at seven a.m this morning the t-minus 20 minutes and holding this is shuttle launch control verify 587 when we come out of this hole and we need a qc on one five three project pc copy that juicy cup he'll be

00:54:08 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3248s)

there okay cup okay coming copy two

00:56:01 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3361s)

11 30 zulu okay okay otc mtd okay uh we're doing the same thing as we did yesterday in the last nine minutes of the count i'll go over the highlights at nine minutes uh while i have jrps give a call to jlps and c1tc to start the printer plotters and at nine minutes uh we'll have the pcc cdr started timer uh five o'clock standby i'll give you a call for closed visors and at six minutes is shuttle launch control at t minus 20 minutes and holding this is a planned 20 minute hold and the second last one in our countdown this morning everything going very smoothly the weather aircraft up and flying around the pad area and reporting back the conditions which they see both around the pad area and around the landing facility meanwhile other centers are supporting the launch this morning at the marshall space flight center the huntsville operations support center continues to monitor data from the space shuttle's propulsion system this is this is a national operations support center at marshall space flight center alabama a team of specialists here has been monitoring countdown data

00:58:01 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3481s)

monitoring countdown data all night and has been well satisfied with the way the countdown has been going these specialists are getting essentially the same data for marshall center hardware which is the space shuttle main engines solid rocket boosters and external tank as launch controllers at kennedy space center the team is monitoring electrical mechanical and fluid system parameters if any problem develops in connection with the main engines solid rocket boosters or external tank the appropriate group here will convene immediately to resolve the problem we would make periodic reports on the team's progress again the specialists here are well pleased with the countdown and are optimistic they expect a launch on time this is the hospital operations sports center this is kennedy space center launch control center at the johnson space center the flight controllers who take over ground responsibility for the mission after launch are located there at the center's mission control center this is shuttle control houston at t-minus 20 minutes and holding the silver team of flight controllers headed by flight director neil hutchinson are back on duty in houston's mission control as we come out of this hold at t minus 20 minutes will be the same point will be on the same point in the countdown when the onboard communication computer communications problem developed friday when the count picks up the four primary flight computers go to a designation known as gnc ops 101 as soon as that's established the crew takes the backup flight system to ops 101 for its initialization the four uh primaries must load the

[01:00:02 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3602s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3602s)

the four uh primaries must load the backup for ops one the ascent program to communicating through their four prime channels known as strings they must communicate after friday's problem the primary flight system was initialized and won't change mission control has verified that the timing is in sync we'll closely watch the data processing system engineer randy stone's console if the primary flight system is again unable to communicate with a backup flight system red lights come on the upper end of his console at t minus 20 minutes and holding this is shuttle control houston hi this is shuttle launch control everything going along smoothly here in the firing room one of the launch control center as we prepare for coming out of this 20-minute hold will be coming out of that 20-minute hold in just the near future no problems have been detected either in the weather or with the vehicle and we look like we're in a goal condition for a seven o'clock liftoff at this time this is shuttle launch control

[01:02:19 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3739s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3739s)

uh could i get verification sequences 14 544 why should they be needed for an early return runway 2-3 the prime landing runway on rogers dry lake this is dry and ready for use weather predictions for this morning call for light winds out of the southwest scattered clouds at 25 000 feet and unlimited visibility as of this time weather conditions for tuesday the planned recovery day are quite favorable nasa dryden is ready for landing this is shuttle launch control at the present time the the test team has completed briefing uh the crew and the other members of the test team on the recycle options in case of an unplanned hold we have approximately five minutes remaining in this hold before picking up at the t minus 20 minute point once again this is shuttle launch control and i'll verify all those cameras were called in 232 600 through 602. and 5.99

[01:04:03 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3843s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3843s)

go to one six one the then cover uh off the external tank uh very shortly now um sorry i'll take you back about nine minutes just about the nine minute hole

[01:06:01 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3961s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=3961s)

okay let's make it a good one quality you're around 143 cover in the first right standby 30 seconds okay this is shuttle launch control at t minus 20 minutes and holding approximately one minute and a half before coming out of that built-in hold the nasa test conductor has conducted a check of the major managers responsible for tonight's launch and determined that they are ready to support the launch as our astronauts john young and bob crippen the orbiter test conductor the booster test conductor external test tank test conductor rain safety officers safety and other uh engineers the nasa test conductor has ordered the countdown to resume and we will be resuming in just about 52 seconds from now going down to a lift

[01:08:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4080s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4080s)

52 seconds from now going down to a lift off on time at 7 am we have no weather problems here or at the primary landing sites everything continuing to go smoothly we will count down from this point to the t minus nine minute point in the countdown and at that point we will hold again for uh ten minutes one of the main

things that will happen first in that uh hold will be the uh movement of the gox vent armor back from the external tank uh just a few seconds away about 15 seconds away from picking up the countdown at the t minus 20 minute point in the count about five seconds and we're at t minus 20 minutes and counting a purge of the fuel cells which provide both electricity for the orbiter and drinking water for the crew is being performed at this point the computer is changed to a program known as major mode 101 which is the terminal countdown configuration at this point the primary computer is can compared with the proper onboard computer to ensure that they are ready for launch the nasa convoy conductor has verified that the landing convoy at the ksc shuttle landing facility is ready uh in case of a return to launch site aboard the landing would be on runway 1-5 all of the other launch sites also have confirmed that they are ready to go just prior to coming out of the hold we received verification that the pre-flight alignment of the inertial measurement union unit had also been completed and so everything moving along smoothly the countdown at t minus 18 minutes 56 seconds and counting this is shuttle launch control

[01:10:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4200s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4200s)

okay we'll go to manual transition or vfs ops one when you're ready okay uh vlt will put that one osc otc tracking all four strings that's in work 656 quality can't work standby 30 seconds this is shuttle launch control at t minus 17 minutes and counting we had a little chair go up here in the control center at the kennedy space center when it was verified that all four of the

[01:12:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4320s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4320s)

the uh general purpose computers on board were communicating properly with the backup computer this was one of the the problems this was the problem which stopped the countdown on friday morning when we were trying to have our first launch of the space shuttle it was determined at that time uh and after that we were not having a successful communication between the computers it was suspected originally that it was the backup computer that was having the problem and then after many hours of work by 50 to 100 computer experts here and at houston it was determined that there was a timing skew or a timing problem between two of the four primary computers and the backup computer the two computers simply tried to talk about 40 milliseconds 40 000 of a second too early to the backup computer and it said that's not the right time to do that and it hung up the phone uh however the in the meantime we have gotten the the computers restarted uh properly timed and they have been running uh ever since that point and they will continue to run throughout the mission at no time with more than two computers be shut down and the computer experts determine that that particular problem uh never occurs once the computers are up and running and timed properly unless they are all shut down and then restarted and only rarely uh does that problem appear then but as it is everything going along very smoothly as we come up on the t-minus 15 minute point in the countdown t minus 15 minutes mark this is shuttle launch control and uh be off market for a

[01:14:13 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4453s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4453s)

autobahn okay std that's 100 fp double os how you doing we're in work do about 30 seconds cell purge is complete we're ready for the load okay uhdc give me the readings on uh forward left and right on the fuel

[01:16:03 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4563s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4563s)

right fuel dps is go roger at 7 30. pick up your step at 11 minutes at 7 20 standby 30 seconds this is shuttle launch control at t minus 11 minutes 45 seconds and counting everything going very smoothly in the countdown at this point the booster test conductor ordered the gaseous nitrogen purge of the solid rocket booster f skirts to begin the chase aircraft presently at patrick air force base have been ordered to start their engines and a check with all the test support team members has verified that they are go for launch of the main propulsion helium subsystem cockpit switches have been configured for launch and the helium tank isolation valves are open in just a few seconds another check of the abort advisory system will be conducted this is a visual signal that would go to the astronauts uh if it were necessary for them to abort we're getting within a couple of minutes now of the final build-in hold that comes at the t-minus nine minute point in the countdown and lasts for a duration of ten minutes

[01:18:03 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4683s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4683s)

and lasts for a duration of ten minutes one of the first things that will happen in that particular hold will be the retraction of the cox vent arm or beanie cap out of the way that has been up on top of the external tank uh has warm uh gaseous nitrogen which is used to prevent any buildup of ice from the venting of the liquid oxygen tank at the present time we're at t minus 10 minutes 23 seconds and counting this is shuttle launch control stand by 30 seconds this is shuttle launch control at t minus 9 minutes 30 seconds and counting just a few seconds away now from our final built-in hold at the t-minus nine minute point in our countdown managers are being pulled uh to determine if we are ready to go ahead we've had confirmation from dod support that contingency support aircraft and personnel are on station and ready to support the launch about five seconds away now from that final nine minute build in hold we're at t minus nine minutes and holding this is the final ten minute build in hold all personnel in the firing room have

[01:20:01 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4801s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4801s)

all personnel in the firing room have been asked to remain seated and no smoking rule has gone into effect through the launch we have had a report from the orbiter test conductor or to the orbiter test conductor that they are go for launch at the present time we know of no major problems as we enter this final 10 minute build in hold one of the first events which will occur during this hold will be the retraction of the gog spin arm and we are waiting for uh the command to do that at the present time t minus nine minute and holding this is shuttle launch control standby 30 seconds this is shuttle launch control at t-minus nine minutes and holding the gox van arm or beanie cap has just been retracted and will be moved to the side momentarily at that point

[01:22:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4920s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=4920s)

to the side momentarily at that point we'll have several important milestones still remaining in the the countdown when we come out of the the count or come out of the hole and begin the count once again the ground lawn sequencer will take over command of the remaining events as well as monitoring the shuttle system's response at t-minus seven minutes the orbiter access arm will retract at t minus five minutes the auxiliary power units will be started at t minus four minutes a purge of the main engines will start and at t minus two minutes and 55 seconds liquid oxygen pressurization will begin at one minute 57 seconds liquid hydrogen pressuration pressurization will start and at t minus 28 seconds the redundant set sequencer will take over at that point events happen far too quickly and readings of systems must be done too fast for humans to perform at the present time waiting for uh nasa test director george page our launch director uh to uh say a few words to the crew about the procedures which will be followed the the gaseous oxygen vent arm the cap has been retracted and the arm is uh just about to move away from the external tank at the present time everything going very very smoothly the gaseous oxygen vent arm now is moving back to the retract position getting it out of the way so that the orbiter can lift off at the and clear the tower properly the launch director coming up to speak to the crew

[01:24:03 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5043s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5043s)

to the crew the launch director is talking to his team about the launch commit criteria at the present time so the launch director is going through the uh the commit criteria with the launch team and he is telling them that if they see something that would require that we cut off that that is the thing to do that we're not going to be taking any chances everybody will be talking on the same channel on what our channel 212. of all americans with you drawn the courage of life our countrymen and poet william colin bryant once said america is where mankind throws off his class better with your exploits we lose them once one more who he said shall place a limit to the giant's strength or curb his witness in the forest race through you today we all feel as giant once again once again we feel the surge of pride that comes from knowing we are the first and we are the best and we are so because we are free for all americans nancy and i thank you and the thousands of others who have worked to make this day possible as you hurtle from earth in a craft

[01:26:02 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5162s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5162s)

as you hurtle from earth in a craft unlike any other ever constructed you will do so in a feat of american technology and american will may god bless you and may god bring you safely home to us again that's the end of the message and john we can't do more from the launch team and say uh we sure wish you an awful lot of luck we're with you a thousand percent and we're also proud i've been a part of it good luck uh trip now i'm proud to work with you you're absolutely professional the best there is and that's a mighty fine speech and we should appreciate it okay this mtd on 212 i like the verification that was shuttle launch control our launch director george page reading a message from president reagan to the columbia crew which began you go forward this morning in a daring enterprise and you take the hopes and prayers of all americans with you uh launch director george page added his uh best wishes he said we wish you an awful lot of luck and that we are with you one thousand percent on the trip we are just about to come out of this t-minus nine minute hold uh in just about two minutes from now we're having a check of the managers who are monitoring uh this morning's launch and uh all of them who have been pulled so far said that they are ready to go we'll be ready to pick up in just about a minute and a half from now this is shuttle launch control

[01:28:12 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5292s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5292s)

that's um just listen at 12. standby 30 seconds this is shuttle launch control at t minus nine minutes and holding we are approximately 26 seconds away from picking up the countdown at the t-minus nine minute point nine minutes remaining between now and seven a.m when we expect to have a lift off of america's first space shuttle uh the launch team has been briefed on the way which a halt can be called to the countdown during the final nine minutes of the countdown and we're coming out we're at t minus nine minutes and counting the launch events are being controlled by the ground launch sequencer now that has been initiated and that will be

[01:30:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5400s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5400s)

that has been initiated and that will be in control up to t minus 25 seconds when they switch to the onboard redundant set launch sequencer the ground line sequencer is a part of the launch processing system and operates by relaying commands to the orbiter's onboard computers which then report back to the launch processing system that the commands have been executed the primary job of the computers is to check that all of the launch commit criteria such as propellant loads temperatures pressures and other measurements are satisfactory the primary chase aircraft have taken off a third t-38 will take off at the t-minus five-minute mark the timing of this plane uh is such the tight window that a 15-second delay would mean that they would not be in the proper position at launch the slate t-38 supersonic trainers have such critical timing because of the small fuel load that they carry t-minus seven minutes 52 seconds and counting uh approximately 40 seconds away from movement of the orbiter access arm this is the final arm which must be moved out of the way to provide for the orbiter to clear the tower properly this may be a very interesting launch to watch from the standpoint that the orbiter is able to translate slightly horizontally as it begins to lift off and it also does a roll maneuver which will place it the orbiter sort of on its back as it goes towards the proper inclination to the equator t-minus seven minutes seven seconds and counting t minus seven minutes and counting and we have retraction of the orbiter access arm beginning to move back first away from the orbiter and then to swing

[01:32:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5520s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5520s)

then to swing away this was the walkway attached to the service structure and used by the crew to walk to the orbiter the crew has been advised to lower their helmet visors very slow movement by the orbiter access arm t minus six minutes 29 seconds and counting the crew is beginning the apu pre-start this the start begins at the five-minute point in the countdown t-minus six minutes 15 seconds and counting the apu's are turbine devices fueled by hydrazine which provides hydraulic power to change the angle of the engines and the flight surfaces on the orbiter t-minus five minutes 59 seconds and counting pilot bob crippen had begun that apu pre-start which started about 48 seconds from now the development flight instrumentation which measures the stresses on the orbiter during flight have been turned on and recorders uh store information for playback after landing t-minus five minutes 30 seconds mark and counting pilot bob crippen has signified the auxiliary power units are ready to be started t-minus 5 minutes 15 seconds and counting coming up on the five minute point four three two one mark t minus five minutes and counting we've had a go for apu start apu start is in work this is a start sequence the final chase

[01:34:01 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5641s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5641s)

this is a start sequence the final chase plane has taken off from patrick air force base t-minus four minutes 42 seconds and counting t minus 4 minutes 30 seconds and counting once we get the apu start we have a total of 12 minutes of hydrazine supply for running the apu's prior to a liftoff everything going very smoothly in this count the apu start is complete t minus four minutes 10 seconds and counting as preparation for main engine ignition the main fuel valve heaters have been turned off t-minus three minutes 57 seconds and counting the final helium purge on the shuttle main engine has been started in preparation for engine start the liquid oxygen replenish system has been turned off in preparation for pressurization of the tanks for the launch t-minus three minutes seconds and counting the elevon speed brake and rudder are being moved through a pre-programmed pattern to assure that they'll be ready for use in flight t-minus 3 minutes 20 seconds and counting the shuttle is now on internal power however the fuel cells are still receiving their fuels from the ground support system for one more additional minute coming up on t minus three minutes t minus three minutes and counting the engine gimbal our movement check is underway to assure they're ready for flight control t-minus two minutes 52 seconds the locks valve on the external tank has been

[01:36:01 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5761s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5761s)

valve on the external tank has been closed and pressurization has begun after the tank is pressurized the hold capability is limited to three minutes 36 seconds t minus 2 minutes 40 seconds and counting the the fuel cell ground supply of oxygen and hydrogen has been terminated and the vehicle is using its onboard supply t minus two minutes twenty five seconds and counting t minus two minutes fifteen seconds the pressure in the lox tank is at flight pressure coming up on just two minutes away from launch t-minus two minutes mark and counting the liquid hydrogen vent valve has been closed and flight pressurization is underway t minus one minute 50 seconds and counting chuck cannon has just said smooth sailing baby to astronauts john young and bob crippen t-minus one minute 35 seconds and counting t minus 1 minute 20 seconds and counting we can see the purges of the main engines as we prepare for ignition t minus one minute ten seconds and counting liquid hydrogen tank is at flight pressure t minus one minute mark and counting the firing system for the sound suppression water will be armed just a couple seconds from now it has been armed t minus 45 seconds and

[01:38:04 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5884s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=5884s)

it has been armed t minus 45 seconds and counting t minus 40 seconds and counting the development flight instrumentation recorders are on t minus 35 seconds we're just a few seconds away from switching to the redundant sense sequencer t minus 27 seconds we've gone for redundance at sequencer start t minus 20 seconds and counting t minus 15 14 13 t minus 10 9 8 7 six five four we've gone for main engine start we have main engines on america's first space shuttle and the shuttle has cleared the tower roger

[01:40:06 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6006s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6006s)

houston you're going throttle up roger columbia on the nice ride you're lofting a little bit so it could probably be slightly higher staging one minute 45 seconds coming up on go no go columbia your negative seat that call up says uh that uh columbia is the altitude is too high for ejection seat use two minutes four seconds standing by for srb confirmation there we go roger on the step columbia mark uh two minutes 20 seconds confirm solid rocket booster set okay mark uh 2 minutes 30 seconds so on board guidance is converging this program columbia is now steering for his precise window in space for main engine cutoff mark two minutes 40 seconds columbia now 39 nautical miles in altitude uh 42 nautical miles downrange mark two minutes 50 seconds columbia you're looking a little hot all your calls will be a little early okay columbia now has two engine rotor capabilities three minutes young and and really moving out now velocity now reading 6200 feet per second

[01:42:05 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6125s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6125s)

mark three minutes 15 seconds columbia now 51 nautical miles in altitude 66 nautical miles downrange velocity now reading 6500 feet per second mark three minutes thirty seconds columbia now 55 nautical miles in altitude 78 nautical miles downrange mark three minutes 40 seconds standing by for a return status check in mission control by flight director neil hutchinson columbia governor green to continue mark three minutes 55 seconds standing by for a prestumiko which says colombia should lose one engine standby prestamiko colombia continues flying forward coming up on negative returns for me mark of four minutes eight columbia stand by for negative return mark negative return and your revamp is good mark uh four minutes 25 five seconds with that call up from capcom capcom brandenstein colombia now committed to space travel young and crippen can no longer turn around and return to the launch site columbia houston we're showing both ohm's pc transducers off-scale high mark four minutes 45 seconds the flash evaporator is activated on board to cool columbia low here roger stand by we'll keep an eye on it mark four minutes 56 seconds columbia's lofting early in the second stage is now being taken out of the trajectories program columbia announced 74 nautical miles in altitude 181 nautical miles

[01:44:01 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6241s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6241s)

glad you're enjoying it mark 5 minutes 15 seconds at columbia now 75 nautical miles an altitude 202 nautical miles downrange velocity now reading 11 000 feet per second a status checking mission controlled by flight director neil hutchinson columbia houston you're go at 5 30 miko 8 plus 3 4. mark 5 minutes 40 seconds that call up from capcom brandenstein says in colombia's trajectory navigation and engine performance look good you're reading you loud and clear okay your career a little weak mark uh bermuda 555 should be getting better here in a second okay six minutes columbia now 76 nautical miles an altitude 280 nautical miles downrange velocity now reading 13 000 feet per second columbia houston i could have the cryo heaters please and columbia your single engine rotor mark six minutes 25 seconds that call up from capcom brandenstein says that if two engine failure occurred colombia is capable of an emergency landing at rotor naval air station spain mark uh six minutes 40 seconds columbia pitching over now diving to increase velocity decrease altitude giving colombia her most favorable attitude colombia now 72 nautical miles in altitude 373 nautical miles downrange velocity now reading uh 16 400 feet per second standing by for a single engine presto miko call up from capcom brandenstein

[01:46:07 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6367s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6367s)

columbia your single engine press for meco mark 7 miss 20 seconds that report says a young encryption can achieve orbital insertion even if two engines go out mark uh seven minutes 30 seconds columbia 67 nautical miles in altitude 485 nautical miles downrange g-force is building for young encrypt and now up to three g's mark seven minutes uh 45 seconds columbia's main engine slowly being throttled back now should be throttled at 65 percent at six seconds before main engine cutoff status checking the control center columbia houston you're going eight mark eight minutes four seconds looking good columbia now 63 nautical miles in altitude 606 nautical miles downrange mark eight minutes 15 seconds columbia now 63 nautical miles in altitude 650 nautical miles downrange standing by now for main engine cutoff roger columbia amigo confirmed shut down columbia the gem of this new ocean now in space not yet in orbit now standing by now for external tank separation okay we've had roger we can firm this up club nine minutes three seconds confirm external tank separation columbia now performing an evasive

01:48:00 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6480s)

columbia now performing an evasive maneuver moving below and beyond and translating the north of the external tank young should see it moving away out this window nine minutes 40 seconds go no go status check and mission control for the first olmsburn give it a go columbia houston your goal for nominal homes one and for ap you shut down on time mark 9 minus 55 seconds columbia now maneuvering to its homes one burn attitude and using the two six thousand pound thrust engine the ohms one will be posit grade moving columbia forward and higher on her flight path placing columbia in orbit standing by for ignition 10 minutes 22 seconds columbia 67 nautical miles in altitude 1160 nautical miles downrange okay we got 102 on the left and 101 on the right pc roger columbia they're looking good to us a status check in the control center

01:50:09 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6609s)

in columbia houston uh we have 40 seconds to los configure los you're looking good burning over the hill we'll see at madrid 42 right now roger shuttle control houston at 12 minutes mission elapsed time we've had loss of signal with colombia through bermuda the next station to acquire will be madrid still receiving data however in the control center right at the shutdown they saw the right it lost the signal they saw the shutdown of the homes

01:52:55 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6775s)

madrid come take houston air to ground one this is my air complex right you want to do an h5 i'm gonna multi access air to ground one and two ruger assisting cam tech testing one two three four five test out roger both being and modulation are go air on one air lodge configure for the pass

01:54:17 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6857s)

uh this is shuttle control houston at 15 minutes 30 seconds mention the last time flight dynamics officer jay green reports the ohms 1 burn was normal time of ignition 10 minutes 37 seconds mission elapsed time delta v 164.7 feet per second duration of the burn one minute 27 seconds resulting orbit apogee 132 nautical miles per g 57 nautical miles so colombia is now in orbit not yet her desirable orbit at the start of homes one columbia was about 400 feet below 150 feet in front and 350 feet north of the external tank also columbia weighed four and a half million pounds at launch she now weighs about 214 000 pounds at 16 minutes mission elapsed time this is shuttle control houston

01:56:29 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=6989s)

this is shuttle control houston at 18 minutes mission elapsed time um about a minute away now from uh reacquiring columbia through the madrid tracking station we'll stand by with the line open now receiving data through madrid columbia houston talking to you through madrid to configure aos we have you for four and a half minutes okay we're looking good stuff looks normally the only one that was normal and i'm down there

01:58:04 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=7084s)

roger i could not see walter i was too darn busy and plus there's lots of clouds up there roger that was bob crippen on the line to uh capcom dan brandenstein main engines are stowed now as programmed hello roger columbia we're watching it looks good they're just leading down to that status check in the control center now by flight director neal hutchinson a go no go for olms 2. columbia houston uh your goal for nominal owns two okay we got the target floated how does it look to you we're uh roger and will you see all that it looks good okay shuttle control houston uh 23 minutes uh mission elapsed time columbia we're 20 seconds from l west we'd like uh the uh flash evaporator uh heater feed line uh system bravo the two we're 13 seconds from los configure l os we'll see you at indy at 36 plus zero zero all right

02:02:03 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=7323s)

this is shuttle control houston 23 minutes uh mission elapsed time we're uh have had a loss of signal through madrid with colombia the next station to acquire will be the indian ocean station in approximately 12 minutes

[02:04:13 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=7453s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=7453s)

t minus 15 14 13 t minus 10 9 8 seven six five four we've gone for main engine start we have america's first shuttle and the shuttle has cleared the tower 434 back to bar e8 roger houston you're going throttle up

[02:06:13 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=7573s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=7573s)

roger columbia on the nice ride you're laughing a little bit so it could probably be slightly higher staging 1 minute 45 seconds coming up on go no go columbia your negative seat that call up says that columbia is the altitude is too high for ejection seat use two minutes four seconds standing by for srb confirmation 20 seconds confirm solid rocket booster setup mark 2 minutes 30 seconds on board guidance is converging this program colombia is now steering for his precise window in space for main engine cutoff mark 2 minutes 40 seconds columbia now 39 nautical miles in altitude 42 nautical miles downrange mark two minutes 50 seconds columbia you're looking a little hot all your calls will be a little early colombia now has two engine rotor capabilities three minutes young and crippen really moving out now velocity now reading 6 200 feet per second mark three minutes 15 seconds columbia now 51 nautical miles in altitude 66 nautical miles downrange velocity now reading 6500 feet per second

[02:08:13 (https://www.youtube.com/watch?v=GjeT1MgOlrM&t=7693s)](https://www.youtube.com/watch?v=GjeT1MgOlrM&t=7693s)

indian ocean tracking station you

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